A New Era of Business Intelligence Education: Preparing Ethical Next-Generation Technology Leaders

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Abstract

Educators are responding to a sense of urgency to meet the changing leadership demands in information technology and data science by developing new academic programs. These programs are focused on continuous, prescriptive learning and an integrated education model between academia and industry. Preparing next-generation technology leaders includes technical competency and business acumen, but does not stop there. Educators must also recognize the ethical implications of the emerging big data era and foster the development of ethical leadership through a framework of competencies that includes emotional and cultural intelligence, adaptive and transformational leadership, and critical thinking.

Introduction

The term business intelligence (BI) was introduced in the early 1990s to describe the use of analytic applications for decision-making processes, such as reporting, querying, and predictive analytics (Watson & Wixom, 2007). Today, the confluence of emerging new market needs and capable new technologies has catapulted the information industry into a period of fluid, fast-paced change. This has resulted in a rapid reshaping of the skills and education needed by incoming business intelligence and business analytics (BA) professionals. The emergence of big data, which represents large quantities of new and unusual sources of data, paired with advanced computing technology and rare combinations of user skills (Wixom et al., 2014), has further influenced the need for change in next-generation academic efforts.

There has been significant contribution to the leadership literature on the identification of sharp criteria to address the need for improved educational curricula to prepare next-

generation technology professionals, as well as for the need of a blended education model between academia and industry. While this paper addresses the leadership demands affected by technology and its influence on future technology leaders as organizations continue to become increasingly data-driven (or, data dependent), its primary purpose is to provide strategies for educators to address these changes to prepare ethical, next-generation technology leaders. As educators address the emerging leadership needs in the new technology era, they must begin by building a framework of competencies founded on ethics. Once this foundation is established, educators must foster the building of leadership competencies that include emotional and cultural intelligence, adaptive and transformational leadership, and critical thinking. These competencies equip graduates with the necessary skills to drive sustainable, ethical change in a rapidly evolving industry with the potential for significant data-driven consequences.

Ethical Implications of the Big Data Era

While many universities and organizations are starting academic programs and training initiatives to meet the needs of the technology industry, merely educating incoming knowledge workers is not the answer to developing future technology leaders. Gallager, Dadone, and Foster (2010) wrote that innovation cannot be a reactionary measure, and further, that reinvention is an intentional and proactive process designed to reimagine leadership potential. Developing leadership potential involves academic research, business acumen, and a process of developing the leaders from within to equip them with the leadership skills and competencies they need to be successful.

To be truly innovative, Phillips (2013) noted that leaders must be willing to be disruptive; they must break out into new technologies and new capabilities. Phillips further noted that at some point, even the most innovative can become stagnant if they are only improving on what has already come. Kotter (2008) said that creating a sense of urgency is the first step (of many) to avoid stagnation and achieve success in a rapidly changing world. To achieve this sense of urgency, leaders must identify and resolve issues that create obstacles to success; they must foster change initiatives, celebrate

short-term wins that open pathways to larger goals, and incorporate changes into the organizational structure, processes, and culture (Kotter, 2008). While academia and industry respond to this sense of urgency on a larger scale through integrated education, today's educators must also embrace a sense of urgency in developing future technology leaders by fostering growth in critical leadership competencies.

The proliferation of big data in the past several years has raised concerns over privacy and the collection, storage, distribution, and use of sensitive information by organizations. The widespread and robust amount of data generated has led to an increased reliance upon data by businesses, and big data strategies are now a critical component of business objectives as organizations seek to maximize the value of information. However, while technology brings more opportunity to use data to inform business decisions, it also fosters the potential to use this data unethically (Nunan & Di Domenico, 2013). Providing future technology leaders with a foundation in ethical accountability will support the emergence and nurturing of complementary leadership competencies in emotional and cultural intelligence, transformational and adaptive leadership, and critical thinking and decision making.

Developing Ethical Leaders

Developing leaders must be aware of their ethical responsibilities not only to the organization but also to the people inside the organization, those it affects, and society as a whole. Organizational structures (including requisite policies and codes of ethics) do not guarantee ethical behavior unless leaders actively demand that these policies are followed. Even then, ethical issues arise. Ethical leaders must have the courage to take action when the organization acts unethically, even if it damages profits or has an unfavorable impact on the business.

Freeman and Stewart (2006) encouraged leaders to have a "living conversation" (p. 4) about ethics and behaviors throughout all levels of the organization to provide a measure of accountability and transparency, reinforcing a culture of ethical responsibility. This conversation includes providing mechanisms to voice concerns and

push back on organizational practices or activities perceived as unethical. Educators can help prepare future technology leaders to act as advocates in the ongoing ethics conversation by providing opportunities to develop emotional and cultural intelligence.

Emotional Intelligence

Emotional intelligence (referred to as EQ) is the ability to monitor one's feelings and those of others, and to use that information to guide thinking and action (Salovey & Salovey, 1990). Leaders must be aware of their decisions, mannerisms, and actions, and how these can be perceived by others (Mcabe, 2005). This awareness of self is a key function of emotional intelligence. Leaders who possess emotional intelligence can self-regulate and know which emotions they are feeling and why; recognize the link between their feelings and what they think, do, and say; recognize how their feelings affect their performance; and have a guiding awareness of their values and goals (Goleman, 1998). More important, ethical conduct is "essential for the proper functioning of society in general and business in particular" (Angelidis & Ibrahim, 2011, p. 115).

Studies by Angelidis and Ibrahim (2011) concluded that the ethical perspective of managers has a positive correlation with their levels of emotional intelligence, and that emotional intelligence provides a link between ethical understanding (the awareness and attention to ethical issues) and ethical behavior (the actions taken that support the former). Ultimately, the goal of increased emotional intelligence competency is awareness into the self and others, how actions and behaviors directly affect perceptions of a leader's ethical attitude and values, and how this reflects on the ethical behavior of an organization in its approach to big data.

The academic experience is charged with the objective of preparing future leaders through the accumulation of technical knowledge and skill set. Additionally, further core objectives of education have been described as developing the abilities of cognitive and intellectual ability, self-management and intrapersonal abilities (including adaptability), and relationship management and interpersonal abilities (Boyatzis, Stubbs, & Taylor,

2002). Horton-Deutsch and Sherwood (2008), too, noted that pedagogies that integrate textbook learning with reflective learning are critical to the development of emotionally competent leaders. Educators can help develop students' emotional intelligence by using a holistic approach to education; rather than relying on lecture-and-discussion methods, educators should focus of learning rather than teaching and embed insights into the distinguishing characteristics of great managers from great leaders in curriculum and pedagogy (Boyatzis, Stubss, & Taylor, 2002). Further, educators should facilitate an accurate self-assessment of student emotional intelligence competency, and engage in development-oriented behavior in the classroom to address areas of deficiency (Sheldon, Dunning, & Ames, 2013).

Cultural Competence

Finally, emerging technology leaders should be instructed in the responsiveness to a multicultural vision that assesses the cultural competence and empathy of leaders to help them thrive in diverse business environments. Cultural intelligence, or CQ, is a construct derived of Sternberg's integrative theoretical framework of different loci of intelligence as the "capability to function effectively in a variety of cultural contexts" (Livermore, 2011, p. 3). Freeman and Stewart (2006) further posited that ethical leaders can "understand why different people make different choices" (p. 6). A widespread understanding and insight into different cultures, motivations, and norms will provide leaders with the skills to make ethical decisions when dealing with the realities, opportunities, and challenges of working in diversity (Cortes & Wilkinson, 2009), and also provide them with insight into the behaviors and expectations of outside cultures (Moodian, 2009). Cultural intelligence is distinct from individual personality differences and has predictive validity in areas ranging from demographic characteristics to cross-cultural experience.

Leadership is the most important element in initiating a culturally intelligent perspective and diversity inclusion and awareness effort (Hubbard, 2004). Additionally—and perhaps more important—a top-down diversity leadership approach is a critical

component of a diversity implementation within an organization (Ng & Sears, 2012). This includes the academic learning institution.

As leaders, educators can assist students in developing cultural intelligence by first and foremost demonstrating a commitment to diversity leadership. They must demonstrate actions to support, challenge, and champion the diversity process within their institution. Educators should foster further development of cultural intelligence within students by encouraging students to recognize diversity in everyday scenarios, ranging from direct interactions in a work or learning environment to virtual classroom, to casual interactions through various forms of social media and with peer groups.

Adaptive and Transformational Leadership

With the rapid rate of change, complexity, and uncertainty in the business intelligence industry, adaptive, transformational leadership is paramount to driving organizational success. The ability for organizations to thrive in new business environments is critical, and solutions to these challenges "reside in the collective intelligence" (Heifetz & Laurie, 2011, p. 58) of leaders. Heifetz and Laurie (2011) defined this trait requisite of successful leaders as that of adaptive leadership, which they also noted is "counterintuitive" (p. 59), primarily because leaders must be able to "see a context for change or create one" (p. 60), rather than respond to a need. Adaptive leadership, then, is about leading change that enables organizations to thrive. It is the practice of mobilization, and it occurs through experimentation and requires diversity (Heifetz, Linsky, & Grashow, 2009).

Because transformational leadership is "individually considerate" and provides followers with support, mentorship, and guidance (Bass & Riggio, 2006, p. 5), it is tied innately to the construct of emotional intelligence. This connection between transformational leadership and emotional intelligence has been supported by several empirical studies that report a positive correlation between the two, and analysis of study results has indicated that both emotional intelligence and transformational leadership are emotion-laden constructs (Lindebaum & Cartwright, 2010).

The principal difference between these two theories is that emotional intelligence is applied primarily to the leader, while adaptive leadership is applied primarily to the organization. However, adaptive leadership requires that a leader embrace a learning strategy to address challenges that are adaptive, or for which there are no known solutions and which require a shift in thinking (Granger & Hanover, 2012). This, in turn, denotes a need for emotional intelligence in the capacity to be self-aware and self-managing (Goleman, 2005). A transformational leader must shift perspectives to adapt to changes that are happening, and to leverage emotional intelligence skills to motivate and inspire others to engage when confronting a challenge, adjusting values, changing perceptions, and nurturing new habits—or, behaving ethically (Heifetz & Laurie, 2011).

Building on the competencies of emotional and cultural intelligence, educators can leverage these skills to build adaptive and transformational leaders by focusing on reflectivity and promoting self-aware leadership within the context of change. Mezriow's (1991) theory of transformative learning noted that critical reflection can transform the learner. And, as a learning strategy, reflective learning can help learners increase their "awareness of perceptions, reactions, and assumptions that limit thinking and foster conscious decisions" (Horton-Deutsch & Sherwood, 2008, p. 947) in a way that is congruent with values and drives organizational growth and positive change in society. This allows students to become more perceptive, less defensive, and more accepting of new ideas, leading to transformational leadership (Sherwood & Horton-Deutsch, 2008).

Critical Thinking

Leading critically is applying critical thinking skills to decision making and leadership actions (Jenkins, 2012). Future leaders begin with a limited amount of knowledge and gain new information by mastering the skills of reading, listening, and experiences—or, learning to observe, reason, imagine, and challenge—competencies that amount to critical thinking preparedness (Welton & Egmon, 2006).

Because critical thinking is a three-step process of discernment, analysis, and evaluation with assessing a situation or issue, critical thinking is an iterative and agile process of identifying an issue, reviewing its facets and characteristics (including potential complications, consequences, and merits), and systematically evaluating the scenarios and options discovered prior to initiating a responding action. Critical thinking is therefore an "art" (Paul & Elder, 2014, p. 41) that ensures one uses the best thinking for any circumstances. Together, the art and process of critical thinking leads to innovative decision making. Leveraging the inclusion of earned competency in emotional and cultural intelligence, the concept of psychological capital notes that a leader with confidence, intent, and optimism may display higher critical thinking skills (Luthans, Youssef, Sweetman, & Harms, 2013; Youssef & Luthans, 2007).

Leaders who exhibit strategic decision making analyze ideas in a non-superficial way to discover logical connections for reasoning and effective judgment (Patterson, 2011). Educators can help future technology leaders develop critical thinking skills by using inquiry-based teaching to encourage intellectual engagement. This method is intended to improve essential learning outcomes, like critical thinking and reasoning, which enhance cognitive performance and future competitiveness. It promotes student inquiry and discovery in an authentic context, and consists of elements including inquiry related to community need, subject-matter-aligned case study exercises, peer evaluation, individual accountability, and lecture content on key concepts (Greenwald & Quitadamo, 2014). Several studies exist that prove the applicability of the inquiry-based teaching model on development of critical thinking skills (Ernst & Monroe, 2006; Greenwald & Quitadamo, 2014). Moreover, critical thinking through a process of critical reflection prepares learners to "think and discriminate between beliefs that rest on empirical evidence and those that do not" (Horton-Deutsch & Sherwood, 2008, p. 948), and relies on the earlier discussed concept of reflection to drive higher thinking that includes self-awareness.

Vision of Future Leadership

Bennis and Townsend (2005) aptly stated that no two leaders are the same. However, developing future technology leaders from the foundation of ethics will establish an ethical framework for leadership behavior. It will also help incoming knowledge workers navigate the unintended consequences and inherent challenges present in an increasingly data-driven and analytic business environment (Buytendijk, 2013).

And while specific practices to prepare future leaders will vary for any given industry, the inclusion of a standard model of education on both technical and leadership skills; providing prescriptive, applicable, and practicable experience through an integrated learning model and educational and leadership opportunities; and recognizing that leadership is an ongoing process and that learning and growth happen perpetually provides educators with the framework needed to develop ethical, next-generation leaders, regardless of industry.

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